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ABSTRACT

The relationship between educational finance and organizational effectiveness or "health" in 50 Connecticut high schools was examined. Data were collected using existing organizational health questionnaires and archival data. A sample was randomly selected from the population of public high schools in Connecticut. Seven "organizational health" characteristics were used, including leadership, cohesiveness, resource utilization, adaptiveness, optimum power equalization, morale, and planning. Financial variables included mean class size, percent of teachers with master's degree, minimum teacher salary, maximum teacher salary, enrollment, per pupil expenditure, instructional supply per pupil, pupil services per pupil, special instructional programs per pupil, special state aid per pupil, and federal aid per pupil. Statistical treatment was step-wise multiple regression with the seven "health" characteristics as dependent variables. Only a marginal relationship was found to exist between any of the financial and organizational variables; however, a modest relationship was found to exist between selected variables, and these findings warrant further examination with redesigned studies before policy decisions can be developed. An overview of the literature and major theorists on organizational theory relative to organizational health is given. Eighty-eight references and four tables are included. (WTH)

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The Relationship of Selected Financial Variables to the Organizational Health of High Schools

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Paper Presented at the Annual Meeting of the American Educational Research Association

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ABSTRACT

THE RELATIONSHIP OF SELECTED FINANCIAL VARIABLES TO THE ORGANIZATIONAL HEALTH OF HIGH SCHOOLS

Harvey B. Polansky, Ph.D.
The University of Connecticut, 1987

OBJECTIVE OF THE STUDY

This study examines the relationships among financial and organizational variables of 50 Connecticut high schools in one recent year. The concern guiding the study is one of equity. Are schools that are disadvantaged financially also disadvantaged organizationally?

THEORETICAL RATIONALE

From the early research in educational finance of Cubberley (1906) and Mort (1941) to the more sophisticated scholarship of the present era, most school finance researchers have defined their interests mainly in terms of dollars raised to provide educational services to students. Another group of researchers, the organizational behaviorists, has been concerned with the functional and structural relationships among teachers, administrators and others who inhabit school settings.

The present study attempts to link these distinct lines of research. Finding substantial linkages, or, alternatively, the absence of such linkages, will increase our understanding of schools as financial and organizational systems.

METHODOLOGY

A factor analytic study done by Hubert (1984) identified seven constructs (sub-scales) to measure the organizational health of high schools. The named sub-scales were derived from a widely used questionnaire, the Organizational Health Instrument, Form B. Hubert administered the instrument to 1,310 teachers across Connecticut and obtained scores on a school-by-school basis.

This researcher then selected eleven school based variables representing the domain of finance. Data both within and between the two domains were examined for evidence of relationship. The main statistical treatment was step-wise multiple regression with the seven organizational health measures as dependent variables.

RESULTS

Based on the variables selected in this study, only a marginal relationship exists among any of the financial and organizational health variables. Substantial correlations were found among several of the variables within the two domains, however, confirming the interrelationships among selected state-wide financial variables and the interrelationships among the derived organizational health measures.

SIGNIFICANCE

The study is a first attempt to examine relationships among finance and organizational health. These two facets of educational organization appear to be substantially independent of one another. Within the limits of this particular ex-post facto, non-experimental research design, it was determined that an initial link between these two sets of variables does exist. However, more sophisticated research methodologies, studies done at other times or in other settings, might find closer linkages between these two sets of variables.

Introduction

Finance in education has been a major area of concern for educators for the better part of this century. The literature has focused on funding policies among states and localities. Educational finance research was pioneered by Strayer and Haig in the early 1920's and by Updegraff and Mort in the 1930's and 40's. As early as 1905, United States Commissioner of Education William T. Harris commented on the educational disparities among states (Brindamour, 1985). On the state level Cubberley (1906) found that the seven wealthiest towns in Connecticut spent $26.65 per pupil, while the seven poorest towns spent $20.87 per pupil. Research in educational finance has stimulated much controversy over the years. Interest in this area has grown with the courts and the legislature contributing substantially to the definitions of adequate financial support for public education.

Many of these reform movements focused their attention on the link between the expenditure disparities and local wealth of the community and the effect these disparities have on the school program (Odden, 1980). Reformers believe that students in poor districts should be given the same opportunity to learn in a school environment as stimulating and as cohesive as that available to students in wealthier districts. Odden (1980) believes that a significant link

exists between spending and, the quality of the school and the environment associated with the school. In general the work of the reformers has been effective in getting more aid to local school districts (Brindamour, 1985).

A completely different line of research has focused on the school as an organization. While much of the literature has focused on the internal operations of the school organization, there exists a rationale that in fact many external factors affect the school as an organizational entity. It is believed that since many external conditions impinge on the organizational effectiveness of schools, the need for new management methods and organizational policies must be realized (Berman & McLaughlin, 1978; Dembowski, Gay, & Owings, 1979; Keough, 1978; Levine, 1978). Matthew Miles (1965) refers to these organizational perspectives as organizational health characteristics and provides the basis for examining organizational health characteristics in schools.

Problem Statement

In Connecticut the programs and services which students receive vary greatly from district to district. In some districts students attend classes in well-maintained surroundings with an appropriate budget for supplies and equipment. In other districts students work in overcrowded classrooms within poorly maintained physical plants. These

varied educational conditions are caused mainly by the wide disparities in local tax contributions. Since the state assumes the primary financial responsibility for educating youth, these differing conditions can be traced directly to the amount of state aid distributed (Reilly, 1982).

Intervention by the courts in Connecticut has added a new dimension to the entire public education finance controversy. On April 19, 1977 the Connecticut Supreme Court issued its far reaching decision on Horton v. Meskill. In that case the court ruled that property rich towns in Connecticut were able to provide a higher quality education than were property poor towns. The courts ordered the State of Connecticut to remedy these disparities by adopting a new state aid formula. In many states legislatures have instituted similar reforms to equalize the disparities within them and to address the spiraling cost of education.

Within states a variety of fiscal reform programs have splintered once unified regions. School districts are forced to interact in a much different external environment. Many external financial and social pressures have impinged on the role of educators. These external conditions consist of variables such as financial support, community and state resources and student and staff demographic characteristics (Garms, 1978). To successfully cope with these new conditions, school leaders need a clear understanding of the

external environment and how it relates to the organizational characteristics of schools.

A myriad of literature exists which has focused on the concept of the school as an organizational entity (Carlson, 1975; Deal & Derr, 1980; Katz & Kahn, 1966; Miles, 1965). The existing literature has paid little attention to the concept of how spending effects the organizational well-being of the institution. Using existing data, this study will address the following problem: Does a statistically significant relationship exist between selected organizational health variables and selected financial data?

Background

If state aid were provided in such a way that an equal amount of aid was distributed to every child in the state, there would be complete equality in the distribution of state aid. However, because of the great variation in the amount of local tax contribution, equality would not have been achieved (Brindamour, 1985; Hickrod, 1971; Reilly, 1982). Educational finance research has focused predominantly on the attempts to equalize educational opportunities and on the reforms of state spending programs. However, no study has investigated the relationship of the amount of financial support to schools and the organizational health of schools. This research attempts to

examine a priori the belief that selected finance variables are linked to organizational health variables. This belief stems from a theoretical rationale that is rooted in the literature and previous research efforts. Blau and Schoenherr (1962), Brindamour (1985), Fairman (1983), Hubert (1984), Jones (1985), Holmes (1980) and Thompson (1983) provide the necessary research base for further examination of this topic.

Matthew Miles (1965) proposed a general model of school organizational functioning and a conceptual framework for determining the organizational health of schools. Its purpose was to help understand the innovation process in schools and the critical influence of the environment on the effectiveness with which innovations were installed. Part of this model of school operation was a set of ten organizational characteristics which he called collectively "organizational health" characteristics. Since schools are influenced by many external conditions, this research will attempt to determine if a relationship exists between the organizational health of the school and the school's external environment.

Various researchers use different schemata for organizing their views of an organization's external environment (Thompson, 1983). No matter what model is used agreement exists that external variables can account for a portion of the variance in organizational behavior (Bennis, 1966; Blau

& Schoenherr, 1962; Mort, 1941; Thompson, 1967; Thompson, 1983). Garms (1978) suggests that these external conditions consist of financial support, community and state resources and student demographic characteristics. Since empirical evidence drawing a significant relationship among the organization and its external conditions exists, this research will build upon the existing theoretical concepts and attempt to develop a link between organizational health and selected financial variables.

Organizational Health

Organizational Theory. American society demands much from the public schools. A review of recent literature indicates that there are a multitude of school critics and a plethora of suggestions for improvement. Organizations exist to achieve a goal or specific set of goals. They seek to do this by accomplishing certain tasks (Owens & Steinhoff, 1976). Lawrence and Lorch (1967), Perrow (1977) and Owens (1981) have developed research into the concept and histories of organizations. It is important to gain a generic understanding of organizations in order to facilitate a better understanding of schools as an organization and the concept of organizational health.

Within the school organization there exists an attempt to measure the effectiveness of the organization. For the purpose of this research this measure will be referred to as

"organizational health", a concept promoted by the research initiated by Miles (1965).

Miles approach was a outgrowth of the organizational behaviorist research efforts that has dominated the literature since the turn of the century. These previous research efforts have provided the rationale for the development of the organizational health concept (See Table 1).

TABLE 1

Dominant Theorists In Organizational Theory

1900 - 1935	1935- 1954	1954- PRESENT
Classical Period	Human Relations Period	Organizational Behavior Period
Fayol	Barnard	Blau & Scott
Taylor	Mayo	Fiedler
Weber	Dalton	Griffiths
	Lewin	Hage
	Selznick	Halpin
		Miles
		Owens
		Perrow
		Vroom

Schools as Organizations. Within the larger context of formal organizations exists a sub-group of public

organizations. Public organizations are a unique group of organizational structures even among the structures discussed (Katz & Kahn, 1966). Public organizations exist at the mercy of the public and related judicial and legislative interferences. Carlson (1975), Deal and Derr (1980), Katz and Kahn (1966) and Miles (1965) have noted that schools have a different form of public organizational structure and are unique within the public organizational domain. Numerous characteristics of educational organizations have been identified, as have variables measuring the general health of schools.

Organizational Health Literature. Miles' "Planned change and organizational health: figure and ground" (1965) provided an interesting analysis of school organizations and is the theoretical base for this study. Since it is the intention of this research to establish the relationship of select financial variables to organizational variables, Miles' work provides an outstanding theoretical overview of organizations.

Miles (1965) examines the innovation process in schools and the critical influence of the environment on the effectiveness in which innovations were installed. Part of this model of school operation was a set of 10 socio-psychological traits of organizations, which he called collectively "organizational health." Most of these 10

dimensions are self-explanatory but some discussion of five of them may assist in understanding these concepts. Resource utilization refers to the effective use of school inputs, especially personnel. Autonomy and Adaptation refer to the way in which the organization deals with the external environment. Autonomy means that the organization is not needlessly buffeted by circumstances but operates from a sense of its own direction and capacity (Hubert, 1984). Adaptiveness is defined as the process in which the organization recognizes what the circumstances are and when changes are in order. Neither term refers to the individual teacher but to the school as an organization (Miles, 1965). Optimal Power Equalization refers to the distribution of power and authority in the organization. In a healthy organization subordinates have some upward influence as well as a sense that their boss has a sense of influence. Miles states that decision making would depend more on knowledge possessed by the individual rather than strict lines of authority. Teachers in healthy organizations have adequate discretion over matters within their classroom on policies affecting how they work.

The particular degree of health of any local school undoubtedly varies from time to time. The historic common sense notion of health is that it represents absence of illness, disease or maladies. According to Miles (1965), "A steadily ineffective organization would presumably not be

healthy, presumably health implies its ability to cope effectively." These second order organizational health characteristics refer specifically to underlying patterns of behavior and typify the way school tasks are undertaken. These 10 characteristics, according to Miles, are not mutually exclusive and interact with each other vigorously as any multiple criterion approach would. Miles' position is summarized with the statement that "attention to organizational health ought to be priority one for any administrator seriously concerned with improvement in today's educational environment" (1965).

Once the Organizational Health approach was published in 1965, literature in this area became more and more common. Contributions to this literature included the works of Bolding and Van Patten (1982), Cicchelli (1975), Ellsworth and Rickard (1978) and Kimpston and Sonnabend (1973). Kimpston and Sonnabend (1973) drew a significant relationship between organizational health and staff characteristics. Through factor analysis they determined that in fact a significant correlation exists among these two variables. The writers point out that "it is important for administrators to be knowledgeable of the dynamics of organization health."

Hubert (1984) evaluated Holmes' (1980) organizational health categories. In a factor analysis of the categories developed by Holmes, Hubert found certain validity problems.

Hubert statistically revised and re-categorized the organizational health categories developed earlier by Holmes. Hubert collapsed the 10 organizational health variables to seven. The revised categories included: Morale, adaptiveness, optimal power equalization, resource utilization, cohesiveness, leadership and planning. In summary organizational health characteristics are a set of school operational variables, which are part of the larger model of school functioning. They are part of a cogent attempt to model school functioning and together represent a reasonable comprehensive portrait of school operations (Hubert, 1984).

Hubert's revised organizational health characteristics provide an appropriate framework for studying the relationship of school organizational factors to external (output) financial factors. This approach has been recommended in the works of Blau and Schoenherr (1971), Burns and Stalker (1961), Emery and Trist (1965) and Lawrence and Lorch (1967).

This research attempted to link two very separate theoretical constructs: organizational health and finance. These two strands of existing research are linked in this research to examine the relationship of finance on the organizational health of schools. Do schools that spend more foster better organizational health? The relationship of

finance and the health of the organization provides the basic framework for this research.

Educational Finance Literature

Background. American governmental structure places much of the responsibility for educating children in the hands of the state and local government since the federal constitution makes no mention of responsibilities for education. It is generally believed that this omission is based on the dual beliefs that local governments can best achieve an effective and economical educational system and that government should leave decision making to the smallest possible societal unit (Phelps & Addonzio, 1981).

According to Mort and Vincent (1950):

> Good schools use the full resources of the community and staff in planning the program of public education. The local tax base should be sufficiently relieved by other taxes and shored up by state aid so that the absolute burden shall not be unreasonable. Communities should therefore be given the power to exceed the minimum program.

Mort produced diversified research in the area of school finance for over forty years, addressing a variety of educational issues. However, his main research focus was in the area of financial support and educational equity. In the final analysis noted Mort (1938) good schools are supported better, and a direct relationship exists between

the amount of financial support and the quality of the educational program.

> Among educational factors, the degree to which teachers report financial difficulties in and out of the classroom... creates obstacles for better education.

Financial Reforms in Connecticut. One of the most important judicial decisions, as it is related to this research, was Horton v. Meskill (172 Conn. 615, 376 A 2nd 359) in 1977. The case filed in the Connecticut Supreme Court dealt specifically with spending inequalities in the State of Connecticut. In a fifty page decision the court recommended specific legislation to address the unequal education received by students in the State of Connecticut. The legislature responded in 1978 with Public Acts No. 79-128, implementing a Guaranteed Tax Base (G.T.B.) program that was to equalize educational opportunities in the State of Connecticut. Before this case was ruled upon, Connecticut was one of five states to still give aid in the form of a flat grant system (Brindamour, 1985). The Guaranteed Tax Base placed a spending cap statewide but mandated a minimum per pupil expenditure. The goal of the G.T.B. program was to: (1) provide a substantially equal educational opportunity in terms of programs and services, (2) to decrease the disparity in expenditure per pupil, (3) to decrease the disparity in school tax rate (Connecticut State Department of Education, 1981). This case, still on

appeal, has forged a new era of fiscal reform in the State of Connecticut. With the courts playing such an instrumental role in attempting to define the states' role in financing education, recent literature has also attempted to address and define the concept of equity in education.

Defining Equity and Financial Variables. The way in which financial equity is defined, as well as the criteria used in determining if it has been achieved, are important and widely debated issues. The courts focused on the resource definition when it addressed the issue of educational opportunity. According to this definition, equal educational opportunity exists when districts have the same expenditures and equal level of school services in proportion to their size (Jones, Owen, Baron, & Darrow, 1978). Contemporary definitions of equity are based on the works of Wise (1968), and Coons, Clune and Sugarman (1970). Wise argued that states can no longer allow such wide spending disparities and that these disparities violated the constitution of the respective state since equality has much to do with the size of the district. While court suits based on Wise's argument were unsuccessful, his argument is considered to be the benchmark of school finance litigation in the 1970's (Jones, 1985).

In Connecticut the Supreme Court defines educational opportunity as the "breadth and quality of services offered

to pupils." The court listed several indicators of quality in their decision. This was an indication that the court agreed with Gifford's concept. Equity is hard to define, but it is clear that equality and equity mean different things. Providing equal oral instructions to deaf students as non-deaf students may be equal, but it is not equitable (Brindamour, 1985). The Supreme Court agreed in their ruling in Lau v. Nichols (Chang, 1980). The court ruled that providing identical classroom experiences to English and non-English speaking children was equal but not equitable. Equity then has two implications:
1) avoiding inadvertent discrimination against groups or individuals, and (2) under certain circumstances providing specific or supplementary treatment to those whose problems arise from educational, economic or societal deprivation (Brindamour, 1985).

Finance Variables. The educational finance issue has presented the researcher with a myriad of variables to measure financial support. A widely accepted measure is the per pupil expenditure level. This variable has been used in studies carried out by Hickrod (1971), Garms (1978) and Chang (1980). Hickrod (1971) hypothetically tested 10 financial variables in an extensive research effort. Hickrod (1971) then provided an extensive overview of literature to date calling per pupil expenditure "an important predictor of the variation in school

expenditures." Garms (1978) also contributed significantly to the definition of this variable in his research, utilizing per pupil variables frequently. Chang (1980) offered still further evidence that the per pupil expenditure variable is a good predictor. Chang looked at the cost of living rate and projected production costs as they relate to per pupil expenditures in education. According to Berne and Steifel, "the per pupil expenditure will be related to tax price of education ... and therefore is a degree of sound financial variation" (1979).

Jones et al. (1978) provides an extensive list of 32 financial variables. In a factor analysis this study done for the State of Connecticut collapsed the 32 variable into 12 categories. The 12 are per pupil expenditure, pupil services, maximum teacher salary, minimum teacher salary, special instructional programs, % of classes over 25, federal aid per pupil, % of classes under 16, % of staff with Master degree, mean class size, special state aid and instructional staff services. Transportation, size, metropolitan status, educational needs and cost of living differentials have also shown to be appropriate measures in educational finance research (Brindamour, 1985).

Methodology. The design employed was an ex post facto comparative one. Data were collected using existing organizational health questionnaires and a review of archival data. The sample was randomly selected from the

population of public high schools in Connecticut. Data on the independent variables were taken from the records of the Connecticut State Department of Education, the Connecticut Association of Secondary Schools, the Connecticut Public Expenditure Council and the Connecticut Interscholastic Athletic Conference. Data on the dependent variables were provided by Dr. John H. Hubert, who utilized this data for his research. The research questions were tested using step-wise multiple regression procedures.

Independent Variables

The independent variables used in this study were selected financial variables, which include mean class size, percent of teachers with master degree, minimum teacher salary, maximum teacher salary, enrollment of the high school, per pupil expenditure, instructional supply per pupil, pupil services per pupil, special instructional programs per pupil, special state aid per pupil and federal aid per pupil. The relevant population for this study was randomly selected. All independent variables represent building level financial data and were taken from the year-end financial report (ED 001). The characteristics for the participating high schools are shown on Table 2.

Table 2

Independent Variables
Selected Financial Variables
N = 50

VARIABLE NAME	MEAN	STANDARD DEVIATION
Mean class size	13.932	1.354
% with master	72.416	11.951
Min. salary	12757.920	1180.111
Max. salary	26554.920	2738.694
Enrollment	965.800	409.501
Per pupil Exp.	3235.160	536.615
Inst. Sup. p/p	75.011	36.498
Pupil ser. p/p	165.340	56.879
Spec. prog. p/p	244.340	112.874
Spec. state p/p	184.724	62.267
Fed. aid p/p	100.800	88.527

Dependent Variables

A total of 1,310 usable Organizational Health Instrument Questionnaires were used by Hubert (1984). The number of completed questionnaires ranged from 25 - 120 per high school based on the size of the school. The Organizational Health data was analyzed, using the Statistical Package for the Social Sciences. Table 3 lists the means and the standard deviations for each of the seven dependent variables, which include leadership, cohesiveness, resource utilization, optimum power equalization, adaptiveness, morale, and planning.

Table 3

Dependent Variables
Organizational Health Characteristics
N = 50

VARIABLE	MEAN	STANDARD DEVIATION
Leadership	53.156	8.071
Cohesiveness	26.866	2.826
Res. Utilization	18.693	1.645
Adaptiveness	18.735	1.913
Opt. Power Equl.	18.253	1.881
Morale	17.151	2.227
Planning	20.925	2.781

According to Hubert (1984) a degree of intercorrelation exists among the derived OHI factors employed in his study. Dr. Hubert indicated however that empirical analysis has shown that the derived factors of the OHI had much lower intercorrelations, thus making them far more suitable for factor analysis, while retaining the quality of the relationship which were expected by virtue of the underlying theory being examined. Hubert noted that the derived organizational health variables retained the operational definitions required based on the theoretical principal present in the literature. The investigation of this was included in Hubert, 1984.

Findings. Table 4 provides a summary of the results for the seven research questions. Each question was tested

by using a step-wise multiple regression procedure. All seven research questions were tested at the .05 significance level.

TABLE 4

Findings of seven research questions examining the relationship between selected financial variables of high schools and the organizational health of high schools using a step-wise multiple regression.

Dependent Variable	Independent Variable	Per Cent of Variance Explained
Leadership	Fed. Aid p/p	9.90*
Cohesiveness	Per Pupil Expen.	17.20*
Resource Utilization	NO SIGNIFICANT PREDICTORS	
Adaptiveness	Per Pupil Expen.	13.20*
Planning	Maximum Salary	11.80*
Morale	NO SIGNIFICANT PREDICTORS	
Optimal Power Equal.	Enrollment	9.50*
	Federal Aid p/p	18.20*

* $p < .05$

Conclusions. Based on this research effort a conclusion can be drawn that a marginal relationship exists among some of the selected financial variables and some of the selected organizational health variables. However, since a consistent statistical relationship does not exist among a majority of the organizational health variables and the financial variables selected for this study, no policy

implications can be assumed based solely on this research effort. This research has expanded the concept of financial research and has developed an initial link between educational finance and the organizational health of schools.

Since the OHI is a relatively new instrument, this research provides the incentive for further examination of the relationships that exist among finance and organizational health variables. It has been noted that a high level of intercorrelation exists among the financial and the organizational health variables. These data confirm the traditional view about the importance of the proper unit of analysis and repudiate any assumption that it might not be necessary to sample schools and to use schools as the unit of analysis (Hubert, 1984).

This reseach effort is consistent with previous statistical procedures provided in the literature and offers findings that are also supported in the literature (Blau & Schoenherr, 1962; Hubert, 1984; Jones et. al., 1978; Kimpston & Sonnebend, 1975). Since there are many criteria used to measure both educational finance and organizational health, additional research in this area can lead to a variety of policy decisions and support some of the findings of this research effort.

IMPLICATIONS

As stated previously, there are reasons for expenditure differences. The size and proximity to urban areas of the districts serves as legitimate reasons for expenditure differential (Brindamour, 1985). This study has demonstrated that funding has a relationship to organizational health. With recent judicial action in Connecticut (Horton v. Meskill), the courts have determined there is a further need to examine the funding formulas utilized.

The following variables were found to be related to the organizational health of high schools: federal aid per pupil, per pupil expenditure, maximum teacher salary and enrollment. Since local schools, as presently organized, have little or no control over enrollment, an examination of the implication of the other variables that had a significant relationship with organizational health variables must be undertaken.

The findings of this study concur with some of the findings of the Hartford Superior Court in the Horton v. Meskill (172 Conn. 615, 376 A 2nd 359) decision. In recent years, the courts have mandated full funding (based on the proposed formula) of the GTB to correct the disparities that exist across the state. The courts concluded that disparities in educational financing cause disparities in

educational programs (Connecticut Department of Education, 1982). This study has demonstrated that a relationship exists between educational spending and the well being of a school organization. Connecticut, as well as other states debating the educational finance issue, need to look not only at the tangible disparities created, they now must also examine organizational health disparities created by funding disparities across the state.

A modest relationship exists among the selected financial variables and the selected organizational health variables. Further examination is necessary before far reaching policy decisions can be developed. However, since a significant relationship does exist among some of the variables, educational leaders should be sensitive to the financial needs of the schools and its impact on the organizational health.

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